6 Using DSPower®-Block Diagram Software

Overview

General Capabilities

Depending on the DSP Engine(s) being used (see below), general capabilities in the DSPower environment include:

1. construct an automated test and/or measurement sequence, including DSP/Analog hardware interface, that runs on the host machine
2. simulate a DSP/math algorithm or system on the host machine
3. access interactive instruments to analyze and measure physical signals connected to supported DSP/Analog hardware
4. execute a DSP/math algorithm or system in real-time, using supported DSP/Analog hardware containing a supported DSP chip
5. access visualization displays to analyze and measure waveform files, arrays, data sets, matrices, etc.

6. use block-diagram interface and source code generation and manipulation capability as a CASE tool to allow design, development, and maintenance of source code for DSP/math systems

7. accelerate a DSP/math algorithm with supported DSP hardware

Specific Capabilities

Depending on the DSP Engine(s) being used (see below), specific capabilities accessible in the DSPower environment include:

1. DSP / math functions

2. visualization displays, including x-y plot, waterfall, contour, pole-zero, linear and log magnitude, unwrapped phase, group delay, and more(depending on the DSP Engine, multiple displays can be shown at once, and multitasking is possible)

3. instrumentation, including Spectrum Analyzer, Digital Oscilloscope, Stimulus & Response measurement, and continuous function generation(depending on the DSP Engine, instruments can be run simultaneously with other tasks)

4. data acquisition(continuous waveform file store and generate to / from disk, digital tape recorder)

5. waveform editing

6. IIR / FIR filter design

7. support for 55+ types of DSP / Analog, acquisition, and multimedia hardware, and more than 8 popular DSP chips

8. import of waveform, array, and matrix data in various waveform file formats

9. export of waveform, array, and matrix data to ASCII files suitable for use by other applications

Main Topics

Getting Started

Creating Block Diagrams

Adding User Defined Blocks

Interactive Operation

6.1 Getting Started

After installing the software, a new program group called "Signalogic DSP Software" will be created in the Windows Program Manger (it may already be there if you have installed another Signalogic DSP software package, such as DSPower-HWLib DLL or Hypersignal-Macro). Double-click on the “DSPower-Block Diagram” icon to start.

For full installation details, refer to System Guide section 3.2, Installing Signalogic DSP Software.

Helpful Things to Know When Getting Started

1) Almost all buttons and selections in DSPower-Block Diagram have “fly-over” context-sensitive help. Leave your cursor still over a button and a fly-over help box should pop up with a brief description. Often times the fly-over help box has a small help button inside, which you can click to bring up more detailed information.

2) DSPower-Block Diagram requires at least oneof three (3) possible “DSP Engines” in order to operate: Hypersignal (-Macro, -Acoustic, or -Macro NRT), MATLAB, or a supported DSP board combined with the DSPower C Code Generator. See System Guide sections 1.1, Relationship of Signalogic DSP Software Components and 1.2, Summary of Signalogic DSP Software Components.

Although the directory paths of installed DSP Engines should already be set during installation of DSPower software, if you have any problems running blocks, like error messages saying “...engine not found...” or similar, you should check the DSP Engines item under the Configuration main menu heading.

3) The easiest way to add a block in DSPower is to point to the desired location in a diagram, and double-click. The block type currently highlighted in the Block Selector (see section 6.1.3, below) will appear as a symbol, with a text label describing the block. The second easiest method is to drag a block type to the desired location,and drop. This method has the added convenience of causing the block setup parameters to appear also.

4) When blocks execute in DSPower-Block Diagram, there is a “DSP Engine Status” box that should pop up to tell you what is going on. This box contains a running report of the status of executing blocks and diagrams (you can also scroll back to review previous events for debugging or other purposes). This status box is vey important; without it you may not realize when an error condition has occurred, or when a block or diagram has completed execution. If the DSP Engine status box is not visible, select the Diagram item under the Options main menu heading and make sure either of the selections “pop up with new info” or “always visible” are set.

5) There are two helpful floating dialogs that can be activated (and put away) as needed: the Block Selector, and the Waveform Locator. These two dialogs are activated by the “find” buttons on the main toolbar (the ones with pictures of binoculars).

6) Before a block that uses DSP/analog hardware in some way will operate correctly, you must select the DSP/Analog Hardware Configuration toolbar button or main menu item (under Configuration main menu heading). Inside this dialog box, you must also click on Set Hardware Variables, and make current selections (typically, for a system with only one DSP/analog board installed, you can use “Set All” inside this dialog box).

Examples of blocks that require hardware configuration before operating correctly include all instrument blocks, function blocks that use a DSP accelerator, and display blocks capable of D/A output. Also, some main toolbar functions, like the DSPower Debugger, also require hardware setup.

7) Maximizing performance of the Windows 3.1x and Windows 95 operating systems can be a complex process, with many settings to consider, and the applications which run under them are no different. There are many system-wide and local settings which affect performance of DSPower-Block Diagram, andwhich should at least be given the “once over”. For more information, see System Guide sections 1.4, System Considerations and 1.4.2, Performance Considerations.

8) Although the location of waveform files should already be set during installation, if you get error messages like “...unable to find waveform file...” then you should check the Directories item under the main menu heading Configuration.

6.1.1 Installation and Checkout

Refer to System Guide sections 3.2, Installing Signalogic DSP Software and 3.2.4, Configuration and Checkout of DSPower-Block Diagram Software.

Related System Guide topics:

Installation Overview

6.1.2 Online Help in DSPower

DSPower offers extensive online documentation in the form of three help files (see listing below)

Help File	Topic
supguide.hlp	The System Guide, overall reference to system configuration, installation, documentation conventions, troubleshooting etc.
useguide.hlp	The User's Guide, help on how to use Signalogic DSP Software.
refguide.hlp	The Signalogic DSP Software Reference Guide.

Also, navigating through help is made very simple. See topics below for more information:

Using Help in DSPower

Search++ Option

This option allows search for topics across multiple help files. This option presents users with a menu of the available help files and enhances the search capability. DSPower is installed with one default setting. For information on customizing this option see Help Options.

To use this option:

- Open help from the main Help menu
- Click on the Search++ button and chose any file from the available list

See Also:

Dialog Boxes

Context-Sensitive Help

Dialog Boxes

Help buttons are made available in all dialog boxes in DSPower. Clicking on these buttons presents help on the options available from the entire dialog box. Context-sensitive help is also available on the individual options in the dialog box.

See Also:

Search++

Context-Sensitive Help

Context-Sensitive Help

Context-sensitive help is available for most topics in DSPower in the form of button help. The little help icon on the button help window opens the topic in the main help file.

See Also:

Search++

Dialog Boxes

6.1.3 Block Selector

The DSPower block selector lists data types and source code types across the top, and block types down the side. Within this matrix, depending on which data, source and block type is selected, are a list of available blocks. From this list, you chose an item. To change the list, you simply change the "matrix" elements across the top side.

Block Selector options:

Data Type

This option allows choice of type of data to be used with software. The available data types are DSP(vector data), IMG(image) or XY.

DSP Data Type

IMG Data Type

XY Data Type

Other Options:

Source Code Type

Block Type

Block List

Find Block

Block Selector Toolbar

Source Code Type

This options allows choice of the type of generated source. Depending on the DSP Engine used, chose .MAC for Hypersignal Macro / Acoustic, .MAT for MATLAB and .c/.cpp for C Code Generation.

An improvement that could be considered in future is to make this option independent of the DSP Engine being used.

.mac Souce Code Type

.m Source Code Type

.c/cpp Source Code Type

Other Options:

Data Type

Block Type

Block List

Find Block

Block Selector Toolbar

Block Type

Available Block types are listed here. Block types include control constructs (if-then, while, for), functions, displays, instruments, filter designs and implementations, utilities, and code blocks. (a "raw" piece of source code, with which nobody knows what to do except insert it into the algorithm). The required block can be selected from this list.

Code Blocks

lsdjfsdjfl

Control Flow Blocks

Filter Blocks

Function Blocks

Instrument Blocks

Monitor/Display Blocks

Utility Blocks

Other Options:

Source Code Type

Data Type

Block List

Find Block

Block Selector Toolbar

Block List

Other Options:

Source Code Type

Data Type

Block Type

Find Block

Block Selector Toolbar

Find Block

Other Options:

Source Code Type

Data Type

Block Type

Block List

Block Selector Toolbar

Block Selector Toolbar

Other Options:

Source Code Type

Data Type

Block Type

Block List

Find Block

6.1.4 Worksheet

The worksheet is presented when you first enter DSPower. Within the worksheet are two important controls, implemented as windows so you can position them as needed, or remove them temporarily. The first one is the "Block Selector." The basic user interface is like most other Windows programs: point the mouse and double-click. Double clicking on a list item causes the block to appear at the lower left of the worksheet. Pointing the mouse and then double-clicking causes the block to appear where you want it. The second control is the "toolbar.".

See Worksheet Options for more information about customization of the worksheet.

Worksheet Toolbar

The toolbar in the DSPower worksheet contains several frequently used operations in icon form. The icons available are listed below:

Run Block Diagram

Stop Block Diagram

Procedurize block

Waveform Locator

Show / Hide MATLAB command window

6.1.5. Waveform Locator

[@k Locating Waveform Files]

This utility provides quick way to locate waveform files in the waveform directory. It also allows drag & drop operation. For Further information. see Dragging Waveform Files.

Available Options:

Attributes

Selecting this option lists other waveform attributes like number of channels, whether complex or not, file data type etc.

See Also:

Headitor

Waveform Search Criteria

Headitor

This utility is a short name for "Header Editor" and allows parameter-by-parameter inspection and modification of waveform file headers The Headitor uses the filename field entry and displays all header parameters in the respective fields. If no filename is entered, then the Headitor will display null entries for all parameters until a filename is entered. If no extension is entered, a .tim extension is assumed.

See Also:

Attributes

Waveform Search Criteria

Waveform Search Criteria

This section allows you to simplify your search by providing the following options:

Waveform path

Lists all specified type of waveform files in the waveform path the system is configured to. The default path is c:\waveforms. For more information see Waveform Files.

File Spec

Lists all waveform files with given specifications from the entry in the File Spec field.

Time Domain

Lists all Time Domain(.tim) files in the waveform path specified in the Waveform Files field in the Directory Configuration menu.

Freq Domain

Lists all Frequency domain(.frq) files in the waveform path specified in specified in the waveform files field in the directory configuration menu.

Wavelet Domain

Lists all Wavelet domain (.wlt) files in the waveform path specified in the waveform files field in the directory configuration menu.

Filter Designs

Lists all Filter Design (.ffd) files in the waveform path specified in the waveform files field in the directory configuration menu.

Filter Coeffs

Lists all Filter Coefficient (.fir) files in the given path specified in the waveform files field in the directory configuration menu.

See Also:

Attributes

Headitor

Dragging Waveform Files

Drag and Drop operation is supported in DSPower and can be used to load Waveform Files. Drag Drop can be done as follows:

1. Select the waveform(s) you would like to load.
2. Click the mouse button; the drag & drop icon appears. Drag the waveform and drop it on the block you would like to load it to. If the waveform is dropped on the worksheet, it is loaded onto the active block in the Block Selector.
3. The Load/Run Query is activated. Chose the appropriate option. See Diagram Display Options for more information about deactivating this query.

6.1.6 Style/Setup Locator

[@k Locating Setup/Style Files]

This utility provides a quick search method of all Setup/Style Files in the waveform directory. The default path is c:\waveforms.

Setup Search Criteria

This section allows you to simplify your search by providing the following options:

Waveform path

Lists all specified type of waveform files in the waveform path the system is configured to. The default path is c:\waveforms. For more information see Waveform Files

File Spec

Lists all waveform files with given specifications (entry in the File Spec field)

Setups

Lists all Waveform Setup(.set) files in the waveform path specified in the Waveform Files field in the Directory Configuration menu.

Styles

Lists all Waveform Style(.sty) files in the waveform path specified in specified in the waveform files field in the directory configuration menu.

Code Blocks

Lists all specified file types corresponding to Code Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

Ctrl Constructs

Lists all specified file types corresponding to Control Constructs in the waveform path specified in the waveform files field in the directory configuration menu.

Displays

Lists all specified file types corresponding to Display Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

Filters

Lists all specified file types corresponding to Filter Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

Functions

Lists all specified file types corresponding to Function Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

Instruments

Lists all specified file types corresponding to Instrument Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

Utilities

Lists all specified file types corresponding to Utility Blocks in the waveform path specified in the waveform files field in the directory configuration menu.

6.2 Options in DSPower

6.2.1 Program Options

Program Display Options

Object size independent of display resolution

Save settings on exit

6.2.2 Worksheet Options

The following options allow for customization of the DSPower Worksheet. The available options are listed below.

Worksheet Display Options

Block Selector Visible

Selecting this option makes the Block Selector visible. This is selected by default in DSPower.

Block Selector always on top

Waveform locator visible

Minimize block selector after each selection

This option allows minimization of the block selector after a block is selected.

Waveform locator always on top

Toolbar Visible

Selecting this option makes the Worksheet Toolbar visible. This is selected by default in DSPower.

Satellite view enabled

This option enables satellite view.

Other Options

Background Color

External Program Windows

External Program Windows

Various DSP Engine Info Windows are made available in DSPower to facilitate diagram operations and debugging.

Status

The status window presents status messages as the blocks are running. This window appears when a block/diagram is run, i.e. with any new information. This default condition can be overridden by selecting the required option.

Waveform Summary

The waveform summary window provides quick information about waveforms used in the diagram. This window appears by default whenever a block/diagram is run, i.e. with any new information. The default condition can be overridden by selecting the required option.

Waveform File Directory

The waveform file directory window presents a directory of available waveform files in the waveforms directory. This window appears with any new information it has. This default condition can be overridden by selecting the required option.

Other Options

Worksheet Display Options

Background Color

This option allows selecting/changing of the background color for the DSPower Worksheet.

Other Options

Worksheet Display Options

External Program Windows

6.2.3 Diagram Options

The following options are made available in DSPower to allow customization of diagrams.

Diagram Display Options

The following options allow for the customization of the Diagram in DSPower. The available options are listed below.

Enable Symbol Display within Blocks

This option enables symbol display within blocks.

Snap to Grid

Snap to grid; Initially disabled

Enable connection avoidance for all objects

Enables connection

Ex Parameters Always Visible

Object size independent of Display resolution

Selecting this option allows for object sizes to be independent of resolution.

Text Labels Visible

Each block in DSPower has a text label which is usually the name of the block. These labels are visible by default. Turning of this option disables the text labels. If enabled, they can be configured to appear either above or below the blocks.

Drag-Dop Action Fixed

Align Blocks to Flow Stage Grid

Disp/Inst. file menu

Disp/Inst file menu

Disable Load/Run query

This option allows enabling/disabling the Load/Run query while Dragging Waveform Files.

Other Options

Diagram Flow Options

Background Color

Block Boundary

DSP Engine Info Windows

Diagram Flow Options

Each block in DSPower has two types of connectors: The Data Connector and the Control Connector. The data connector specifies inputs and outputs of the block. The control connections determine the order of execution of blocks in a diagram.

This option allows the choice of data connections, control connections or both (default).

Other Options

Diagram Display Options

Background Color

Block Boundary

DSP Engine Info Windows

Background Color

This option allows for selecting/changing of background color for any diagram.

Other Options

Diagram Display Options

Diagram Flow Options

Block Boundary

DSP Engine Info Windows

Block Boundary

This option specifies the Block Boundary.

Other Options

Diagram Display Settings

Diagram Flow Options

Background Color

DSP Engine Info Windows

DSP Engine Info Windows

Various DSP Engine Info Windows are made available in DSPower to facilitate diagram operations and debugging.

Status

The status window presents status messages as the blocks are running. This window appears when a block/diagram is run, i.e. with any new information. This default condition can be overridden by selecting the required option.

Waveform Summary

The waveform summary window provides quick information about waveforms used in the diagram. This window appears by default whenever a block/diagram is run, i.e. with any new information. The default condition can be overridden by selecting the required option.

Waveform File Directory

The waveform file directory window presents a directory of available waveform files in the waveforms directory. This window appears with any new information it has. This default condition can be overridden by selecting the required option.

Other Options

Diagram Display Options

Diagram Flow Options

Background Color

Block Boundary

6.2.4 Display Options

Interactive Display Options

Disp/Inst File Menu

Enable Menus

Other Options

Overlaid Toolbar Options

Overlaid Toolbar Options

Percent Max Display Area

Autohide

Disable Overlay When Toolbars Can Fit

Other Options

Interactive Display Options

6.2.5 Help Options

Online help is very powerful in DSPower. The following options are provided for customizing the help windows.

Online Help Settings

Fly-Over Help Enabled

Button Help Display Enabled

DSPower offers very powerful Context-Sensitive Help in the form of Button Help Display. This help can be either long or short form depending on the option chosen.

Help Windows always on Top

Selecting this option sets the "Always on Top" attribute for all help windows. The help window then stays above the Worksheet until it is closed.

Save Help Window Position Between Sessions

Selecting this option saves window position between sessions.

Allow Restore To Maximized

This option allows restore to be maximized.

Enable Navigator

Other Options

Help File List

Help File List

A list of all Help Files used with DSPower is listed in this list box. Options to add/delete help files are also available.

Other Options

Online Help Settings

6.3 Configuring DSPower

Before you can start using DSPower, you will need to configure the following fields:

6.3.1 Directory Configuration

Setting the fields in this menu option tells the software where to look for Waveform files, Block Symbol files, system source template files, used defined template files, etc.

Directory Configuration Fields

Diagram Files

This field specifies the location of all diagram files used by the software and is initialized to c:\dspower\diagrams. If installation was not done with the defaults, the entry in this field has to be changed.

Other Configuration Fields:

Block History Files

Block Symbol (Bitmap) Files

DSP Chip Executable Files

System Source Templates

User Source Templates

Waveform Files

Waveform Files

This field specifies the location of all waveform files used by the software and is initialized to c:\waveforms. If installation was not done with the defaults, the entry in this field has to be changed.

Other Configuration Fields

Block History Files

Block Symbol (Bitmap) Files

Diagram Files

DSP Chip Executable Files

System Source Templates

User Source Templates

System Source Templates

This field specifies the location of source template files available in the system library and is initialized to c:\dspower\syslib. If installation was

not done with the default settings, the entry in this field has to be changed.

Other Configuration Fields

Diagram Files

Block History Files

Block Symbol (Bitmap) Files

DSP Chip Executable Files

User Source Templates

Waveform Files

User Source Templates

This field specifies the location of any user defined source template files and is initialized to c:\dspower\userlib. If installation was not done with the default settings, the entry in this field has to be changed.

Other Configuration Fields

Diagram Files

Block History Files

Block Symbol (Bitmap) Files

DSP Chip Executable Files

System Source Templates

Waveform Files

Block Symbol (Bitmap) Files

This field specifies the location of bitmap files used by the software. If installation was not done with the default settings, the entry in this field has to be changed.

Other Configuration Fields

Diagram Files
Block History Files
DSP Chip Executable Files
System Source Templates
User Source Templates
Waveform Files

Block History Files

This field specifies the location of block History (.ini)files used by the software. If installation was not done with the default settings, the entry in this field has to be changed.

Other Configuration Fields

Diagram Files
DSP Chip Executable Files
System Source Templates
User Source Templates
User Source Templates
Waveform Files

DSP Chip Executable Files

This field specifies the location of DSP Chip Executable Files used by the software. If installation was not done with the default settings, the entry in this field has to be changed.

Other Configuration Fields

Block History Files
Block Symbol (Bitmap) Files
Diagram Files
System Source Templates

User Source Templates

Waveform Files

6.3.2 DSP/Analog Hardware Configuration

See DSP/Analog Hardware Configuration in Section 8.2.2, DSP/Analog Hardware Configuration.

6.3.3 DSP Engine Configuration

Options in this section specify the location and command line for the DSP Engine to be used with the software. The DSPower installation default settings are C:\HSMACRO\hsmacro.exe for Hypersignal and C:\MATLAB\matlab.exe for MATLAB

DSP Engine Configuration Fields

Hypersignal Command Line

This field specifies the command-line needed to invoke Hypersignal Macro / Acoustic if either one is being used as the DSP Engine. The installation defaults to c:\hsmacro\hsmacro.exe for Hypersignal Macro and c:\hsacous\hsacous.exe for Hypersignal Acoustic.

Related Fields:

MATLAB Command Line

DSPower C Engine Command Line

Real-Time DSP Command Line

Run-Time Source Path

Hypersignal Run-Time Source Path

MATLAB Command Line

This field specifies the command-line needed to invoke MATLAB if it is being used as the DSP Engine. The installation defaults to c:\matlab\bin\matlab.exe

Related Fields:

Hypersignal Command Line

DSPower C Engine Command Line

Real-Time DSP Command Line

Run-Time Source Path

MATLAB Run-Time Source Path

DSPower C Engine Command Line

This field specifies the command-line needed to invoke the C Engine if it is being used as the DSP Engine. The installation defaults to c:\dspower

Related Fields:

Hypersignal Command Line

MATLAB Command Line

Real-Time DSP Command Line

Run-Time Source Path

C/C++Run-Time Source Path

Real-Time DSP Command Line

This field specifies the command-line needed to invoke any Real-Time DSP if it is being used as the DSP Engine. The installation defaults to c:\dspower

Related Fields:

Hypersignal Command Line

MATLAB Command Line

DSPower C Engine Command Line

Run-Time Source Path

Run-Time Source Path

This field specifies the location of generated source files for the corresponding DSP Engine. The installation defaults to the root directory of the DSP Engine(s) being used.

Related Fields:

Hypersignal Command Line

MATLAB Command Line

DSPower C Engine Command Line

Real-Time DSP Command Line

6.3.4 Online Editor Configuration

This option allows configuration of the editor for use with DSPower. The default entry during installation is "C:\WINDOWS\notepad.exe"

Online Editor Command Line

This field specifies the command-line needed to invoke the online editor to be used with the software. The installation defaults to c:\windows\notepad.exe.

Other Options

Online Editor Starup Path

Online Editor Options

Online Editor Startup Path

Other Options

Online Editor Command Line

Online Editor Options

Online Editor Options

This section controls customization of the software to a certain extent. The available options for the editor are:

Save Position Between Use

Option to save editor window position between sessions.

Highlight DSPower Keywords

Allows highlighting of DSPower keywords in the editor.

Highlight Dataflow Connections

Allows highlighting of Dataflow Connections in the diagram.

Highlight Controlflow Connections

Allows highlighting Controlflow Connections in the diagram.

Other Options

Online Editor Command Line

Online Editor Startup Path

6.3.5 Online Debugger Configuration

Online Debugger Command Line

Other Options

Online Debugger Startup Path

Online Debugger Options

Online Debugger Startup Path

Other Options

Online Debugger Command Line

Online Debugger Options

Online Debugger Options

Save Position Between Use

Other Options

Online Debugger Command Line

Online Debugger Startup Path

6.3.6 Block Libraries Configuration

This dialog box lists all template / function files available in the system directory. It allows initialization of the Block Selector dialog box. Controls include Listing / Unlisting, duplicating and Renaming of system template/function files.

Block List Criteria

This field specifies the list criteria. The following categories are available:

System Library

Lists specified file types from the system library. The system library is as specified in System Source Templates.

User Library

Lists specified files in the user library. The user library is as specified in User Source Templates.

Template files

Lists all Template Files in the selected directories.

Function Files

Lists all Function files in the selected directory.

Interface Files

.mac

Lists all .mac files in the selected directory.

.m

Lists all .m files in the selected directory.

.c / .cpp

Lists all .c / .cpp files in specified directory.

You can further chose the blocks you want to appear on the Block Selector using the select option. You can choose the Select All Button to choose all available options.

6.3.7 Operator Mode (Stand-Alone Apps) Configuration

Stand-Alone Window Text

Other Options

Operator Mode Configuration Options

Operator Mode Configuration Options

Dislplay DSP engine status/error message

Allow user positioning of control surface area

Other Options

Stand-Alone Window Text

6.4 Creating Block Diagrams

6.4.1 Diagrams

Diagrams are basic to DSPower. A diagram can be created from one or more blocks. Once these blocks have been run, the source code for that diagram will be generated and saved. If the same diagram needs to be run again, the file can be retrieved and re-executed and if this is used very often, making it part of a block library is suggested. It is also recommended that any customized blocks should be saved in the user library. The source code template with the defaults is stored in the system library and can be used to start over.

See Diagram Options for options to customize a diagram in DSPower

6.4.2 Connecting Blocks

Connecting blocks in DSPower is very easy. To make a connection, click on the output blue connector of the first block and click on the input connector of the second block. The line which appears shows the connection. The red inputs to each block can be used to determine the control flow.

6.4.3 Creating Projects

Projects can be created in DSPower with multiple diagrams. Saved projects have a .dpr extension.

6.4.4 Multiple Diagrams

Multiple diagrams ---> Introduction.

6.4.5 Saving and Retrieving Block Diagrams

Although initially not obvious as a user-interface feature, the way block-diagrams are saved in a "source code generation program" truly has bearing on the way you interact with such programs. One striking difference between the "source code generation user-interface" in DSPower and that in other programs: DSPower saves and retrieves block-diagrams directly in source code form.

6.4.6 Executing Block Diagrams

Also see Run One Block,

6.5 Adding User Defined Blocks

6.5.1 Creating and Adding Blocks

At any time, you can add a completely new block to a specific section of a block library, by supplying a source code template file and certain other information needed by DSPower.

6.5.2 Creating derivative Blocks

Similar to creating a procedure block, except that certain, specific system blocks are available that can be used as the original block.

6.5.3 Adding Code Blocks

Code blocks are blocks that contain arbitrary code that may not be easily categorized as function, displays, filter, etc. Typically, such blocks might create and manipulate global variables or arrays needed by the entire block diagram.

6.5.4 Modifying Controls

Inside source code template files, controls can be defined for both the parameter setup box and interactive display window, if any, for all blocks.

6.6 Interactive Operation

6.6.1 Run One Block

-How to specify menu

-filenames, drag-drop etc.

6.6.2 Loading Waveforms

See Waveform Locator, Dragging Waveform Files etc.

6.6.3 Loading Setup and Style Files

See Setup/Style Locator

6.6.4 Viewing and Editing Template and Generated Source Files

Also see Online Editor Configuration

6.7 Tools in DSPower

6.7.1 Operator Mode

6.7.2 Make Stand-Alone Icon

6.7.3 Block Wizard

6.7.4 Waveform Headitor

6.8 Debugging Diagrams

-How to find suspected problems

-disp blocks

-partial execution

-storing waveform files etc.